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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/795,979	03/10/2004	Dong-wook Kim	249/437	2293

7590 05/27/2005

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EXAMINER	
QUASH, ANTHONY G	
ART UNIT	PAPER NUMBER
2881	

DATE MAILED: 05/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/795,979	KIM ET AL.	
	Examiner	Art Unit	
	Anthony Quash	2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3/10/04 (application filed)*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/10/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-30 of U.S. Patent No. 6,815,681 to Kim et al. Although the conflicting claims are not identical, they are not patentably distinct from each other because they claim the same invention.

Claim 1 of application [10/795,979] is covered in claims 1 and 18 of patent [6,815,681].

Claim 2 of application [10/795,979] is also covered in claims 1 and 18 of patent [6,815,681].

Claim 3 of application [10/795,979] is also covered in claim 2 of patent [6,815,681].

Claim 4 of application [10/795,979] is also covered in claims 4 and 19 of patent [6,815,681].

Claim 5 of application [10/795,979] is also covered in claims 5 and 20 of patent [6,815,681].

Claim 6 of application [10/795,979] is also covered in claims 6 and 21 of patent [6,815,681].

Claim 11 of application [10/795,979] is also covered in claims 9 and 24 of patent [6,815,681].

Claim 12 of application [10/795,979] is also covered in claim 10 of patent [6,815,681].

Claim 13 of application [10/795,979] is also covered in claims 12 and 25 of patent [6,815,681].

Claim 14 of application [10/795,979] is also covered in claims 13 and 26 of patent [6,815,681].

Claim 15 of application [10/795,979] is also covered in claims 14 and 27 of patent [6,815,681].

Claim 16 of application [10/795,979] is also covered in claims 15 and 28 of patent [6,815,681].

With respect to claims 7-10,17-20, although the patent [6,815,681] does not explicitly claim the dielectric plate being sapphire, the dielectric having a thickness between 0.1-1 mm, nor the semiconductor film being a silicon thin film, the semiconductor film having a thickness between 100-10,000 angstroms, it is the examiner's view that it would have been obvious to have this. It would have been obvious to one having ordinary skill in the art at the time the invention was made to

have the dielectric plate be sapphire and the semiconductor film be a silicon thin film, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

It also would have been obvious to one of ordinary skill in the art at the time the invention was made to have the dielectric thickness be between 0.1-1 mm and the semiconductor film thickness be between 100-10,000 angstroms, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 21-22,24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chakrabarti [2003/0091257]. As per claim 21,22, Chakrabarti [2003/0091257] teaches preparing a pyroelectric plate, preparing a patterned mask by forming a patterned semiconductor thin film on a dielectric having a predetermined thickness, and disposing the patterned mask on the pyroelectric plate. Chakrabarti [2003/0091257] also teaches sequentially forming a semiconductor thin film having a predetermined thickness and a resist on the dielectric plate, patterning the resist in a predetermined

pattern, patterning the semiconductor thin film using the patterned resist as a mask, and removing the patterned resist. See Chakrabarti [2003/0091257] abstract, figs. 1,8, paragraphs [0004-0007, 0013-0014, 0019-0022]. With respect to applicant's claim concerning the emitter being disposed a predetermined distance apart from a substrate holder, the pyroelectric emitter including a pyroelectric plate having a dielectric plate on a surface thereof and a patterned semiconductor thin film on the dielectric plate facing the substrate holder, these elements were recited in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

As per claim 24, Chakrabarti [2003/0091257] teaches the pyroelectric plate being formed of a pyroelectric material selected from a group consisting of LiNbO3, LiTaO3, BaTiO3, and Pb(ZrTi)O3. See Chakrabarti [2003/0091257] abstract.

As per claim 25, Chakrabarti [2003/0091257] teaches all aspects of the claim except for explicitly stating the dielectric plate being formed of sapphire. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the dielectric plate be formed of sapphire, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

As per claim 26, Chakrabarti [2003/0091257] teaches all aspects of the claim except for explicitly stating that the dielectric plate formed to a thickness in a range of about 0.1 to about 1 mm. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the dielectric plate formed to a thickness in a range of about 0.1 to about 1 mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art.

As per claim 27, Chakrabarti [2003/0091257] teaches the semiconductor thin film being formed of silicon. See Chakrabarti [2003/0091257] paragraph [0014].

As per claim 28, Chakrabarti [2003/0091257] teaches the semiconductor film being formed to a thickness in a range of about 100 to about 10,000 angstroms. See Chakrabarti [2003/0091257] paragraph [0014].

Claim 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gergis [4,900,367]. As per claims 21,22, Gergis [4,900,367] teaches preparing a pyroelectric plate, preparing a patterned mask by forming a patterned semiconductor thin film on a dielectric having a predetermined thickness, and disposing the patterned mask on the pyroelectric plate. Gergis [4,900,367] also teaches sequentially forming a semiconductor thin film having a predetermined thickness and a resist on the dielectric plate, patterning the resist in a predetermined pattern, patterning the semiconductor thin film using the patterned resist as a mask, and removing the patterned resist. See Gergis [4,900,367] abstract, figs. 2,4,6,8, col. 2 lines 35-67, col. 3 lines 1-50, col. 4 lines 30-55, col. 5 lines 1-20, and col. 6 lines 25-50. With respect to applicant's claim

concerning the emitter being disposed a predetermined distance apart from a substrate holder, the pyroelectric emitter including a pyroelectric plate having a dielectric plate on a surface thereof and a patterned semiconductor thin film on the dielectric plate facing the substrate holder, these elements were recited in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

As per claim 23, Gergis [4,900,367] teaches disposing the patterned mask on the pyroelectric plate comprises forming an adhesion layer on the pyroelectric plate and adhering the patterned mask on the adhesion layer. See Gergis [4,900,367] figs. 2,4,6,8, and col. 4 lines 25-55.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent Nos. 6,528,898 to Ikura et al, 6,740,895 to Yoo, 4,053,806 to Turnbull et al, 5,949,071 to Ruffner et al, 6,818,892 to Etienne, 6,476,402 to Yoo, 5,644,184 to Kucherov, 5,589,687 to Kawata et al, are considered pertinent to the applicants' disclosure. Ikura [6,528,898] is considered pertinent due to its discussion on a pyroelectric conversion system. Yoo [6,740,895] is considered pertinent due to its discussion on a method and apparatus for emission lithography

using patterned emitter. Turnbull [4,053,806] is considered pertinent due to its discussion on a pyroelectric detector comprising nucleating material wettable by aqueous solution of pyroelectric material. Ruffner [5,949,071] is considered pertinent due to its discussion on an uncooled thin film pyroelectric IR detector with aerogel thermal isolation. Etienne [6,818,892] is considered pertinent due to its discussion on a system and method for infrared detection. Yoo [6,476,402] is considered pertinent due to its discussion on an apparatus for pyroelectric emission lithography using patterned emitter. Kucherov [5,644,184] is considered pertinent due to its discussion on a piezo-pyroelectric energy converter and method. Kawata [5,589,687] is considered pertinent due to its discussion on an infrared detection device comprising a pyroelectric thin film and method for fabricating the same.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Quash whose telephone number is (571)-272-2480. The examiner can normally be reached on Monday thru Friday 9 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571)-272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A. Quash
AQ
5/24/05

NIKITA WELLS
PRIMARY EXAMINER 05/25/05